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affairs of Perthshire, being a J.P., a member of the County Council, and chairman of two School Boards. He was interested in the working of the Gothenburg system and endeavoured to introduce it into this country.

Mr. Watson was elected a Fellow of this Society on the 8th of January 1892. He married in 1878, and leaves one son. He died on the 19th of May 1903 at his house in Scotland.

Mathieu-Prosper Henry was born at Nancy on the 10th of December 1849. He and his brother Paul went to Paris in 1864, where they became assistants in the meteorological service of the Observatory, Paul in 1864 and Prosper in 1865. They were appointed assistant astronomers in 1868. In their lodgings at Neuilly they succeeded in making a 12-inch mirror and began the construction of an ecliptic chart. When this was brought to Delaunay's knowledge he transferred them from the meteorological to the astronomical side of the Observatory, and on the 1st of July 1871 put them in charge of the "Equatorial du Jardin." They took up the work begun by Chacornac in 1852, interrupted by his death, of constructing charts which should give all the stars down to the thirteenth magnitude in the zone of the ecliptic. Each chart is thirteen inches square, and covers a field of five degrees square, so that seventy-two are required to complete the belt. Chacornac had completed thirty-six of the charts, containing about 60,000 stars. By 1884* the brothers Henry had completed sixteen charts, with 36,000 stars, and nearly finished four more with 15,000 stars. The annual reports of the Director of the Paris Observatory show the progress of the work, and give an idea of the arduous toil and the perseverance of the two brothers. In the course of their work they discovered no less than fourteen minor planets, the first of these, *Liberatrix* (125), being discovered in September 1872. They also made observations of the satellites of *Uranus* and *Neptune*, and sketches of the planets at each opposition. In the winter of 1882 they went to the Pic du Midi to observe the transit of *Venus* from a height of near 10,000 feet at considerable risk to their lives, owing to avalanches. On the day of transit, the 6th of December, the sky was covered with clouds.

As the region of the charts approached the Milky Way the difficulties arising from the large number of stars (15,000 to 18,000 on one chart) made visual observations almost impossible even for observers of their skill and experience. They accordingly determined to try photography, with which Rutherford in America and Common in England had already obtained excellent results, and especially in view of the large number of faint stars shown on Dr. Gill's photograph of the Great Comet of 1882. They first made an object-glass of six and a half inches aperture, and seven feet focal length, achromatised for photographic rays.

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* *Comptes Rendus*, t. xcix. p. 305.

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In August 1884 Admiral Mouchez presented on their behalf to the Academy of Sciences a photograph of six square degrees of the sky, containing 1500 stars from the sixth to the twelfth magnitude. The exposure given was forty-five minutes. A parallel guiding telescope was used. These results were so satisfactory that MM. Henry, with the cordial support of Admiral Mouchez, commenced the construction of a 12·8-inch photographic objective. It was arranged that a parallel 10-inch guiding telescope should be attached to the photographic telescope. This instrument is the type of those now employed for the international photographic chart of the heavens. It was felt that the difficulties of making large photographic objectives would be overcome. "It is known," M. Mouchez said to the Academy, "that MM. Paul and Prosper Henry are not only excellent observers, but also the most skilful constructors of objectives in France; we can, therefore, have the greatest confidence in the results of their labours, for the history of science shows that it is always to astronomers who have made their own apparatus that we owe the most remarkable improvements in the instruments of astronomy and the most remarkable discoveries in the study of the sky."

The anticipations of Admiral Mouchez and MM. Henry were speedily realised, and on the 11th of May 1885 it was announced that the instrument was completed and that a field of 3° diameter was very sharply covered. A photograph with an hour's exposure was found to show stars of the fourteenth and some of the fifteenth magnitudes. By January 1886 MM. Henry had obtained a beautiful series of photographs illustrating the power of their instrument, among these a photograph of the *Pleiades*, showing the nebulosities, photographs of the field round σ *Lyræ*, showing the faintest stars recorded by Herschel, and photographs of the clusters in *Hercules* and *Perseus*.

By their persevering labours and great optical skill MM. Henry had made a great step in astronomical studies, of which the importance was soon realised throughout the world. In the course of a few years the project for the complete photographic chart of the sky was commenced, and is now well on its way towards completion.

During the progress of the astrographic chart MM. Henry have contributed several papers to elucidate minor points which arose as the work was being carried out. They have taken the photographs in the Paris zone and were largely responsible for the calculations and reductions. Again, more than half of the instruments engaged in the International Chart and Catalogue of the heavens have come from their workshop.

As illustrating the extent and character of the optical work carried out by MM. Henry it is only necessary to mention some of the larger objectives and mirrors made by them. The list includes the 32-inch photographic refractor, 24-inch visual refractor, and 40-inch mirror of the Meudon Observatory, the

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24-inch equatorial coudé of the Observatory of Paris, the 30-inch refractor of the Nice Observatory, and the 31½-inch reflector of the Toulouse Observatory.

In writing of Prosper Henry it has been impossible to separate his work from that of his brother Paul. M. Callandreau, their colleague in the National Observatory, writes* of them: "So united was their friendship and collaboration that at the Observatory we seemed to see but one person; so forgetful were they of giving prominence to their respective merits that it is impossible to decide what may belong to each of their common work." The astronomers who attended the conferences at Paris, and thus had an opportunity of meeting Prosper Henry, no less than his colleagues at the Paris Observatory, admired equally the modesty of his nature and the variety and extent of his scientific attainments.

He died suddenly on the 25th of July 1903, while taking a holiday at Pralognan, in Savoy.

M. Henry was a Chevalier of the Legion of Honour, and officer of Public Instruction. He was elected an Associate of the Royal Astronomical Society on the 8th of November 1889.

F. W. D.

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* *Popular Astronomy*, December 1903.